

Hurricane



Typhoon



Rushmore



Multiple Monitor Graphics Cards

RV100 Chipset Family

User's Guide



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In the United States (US), as well as Europe, the Middle East, and Africa (EMEA), use the following information to get help fast:

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Sales	800-727-7426 (US) +44 (0)20 7499 2535 (EMEA)
Technical Support	800-422-7369, 7am – 5pm PST (US) +44 (0)20 7499 2535 (EMEA)
Fax	425-882-8618 (US) +44 (0)20 7495 7636 (EMEA)
Address (US)	Appian Graphics Corp. 18047 NE 68 th Street, Suite B100 Redmond, WA 98052
Address (EMEA)	Appian Graphics Ltd Top Floor 73 New Bond Street London W1S 1RS United Kingdom
Email	support@appian.com (US) nitin@appian-emea.com (EMEA)
Web site	www.appian.com

Information We Will Need

Please have the following information available before you contact Appian Technical Support:

- The name and serial number of your Appian product
- Information about your computer; including the manufacturer, the system BIOS, the type/brand/model of your monitor(s), and other devices installed in your system.
- A detailed description of the problem

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Chapter 1

Introduction

Thank you for purchasing an Appian Graphics multiple monitor graphics card. The Hurricane, Typhoon and Rushmore graphics cards are classified as part of the same family, all using the ATI Technologies RV100 Radeon™VE chipset. This guide introduces you to the RV100 card architecture, performance capabilities and included software. This guide also contains an overview of HYDRAVISION™ desktop display management software and other important technical information. Be sure to read this entire User's Guide in order to get the most out of your new graphics card.

Rushmore is available in a 4-port PCI model for quad-monitor support, while Hurricane and Typhoon are available in a 2-port PCI or AGP model for dual monitor support. With multiple display channels, these RV100 cards are designed to support multiple monitor configurations in Windows NT 4.0, Windows 2000 and Windows XP.

Each of these cards is a single-slot, multiple monitor graphics solution featuring a high-speed PCI or AGP bus interface, up to 64MB of on-board DDR-SDRAM (Double Data Rate - Synchronous Dynamic Random Access Memory), and full VGA and SVGA compatibility.

The RV100 chipset family of cards uses the high-performance ATI Technologies Radeon™VE graphics processor for multiple monitor output. The Radeon VE features two 300MHz RAMDACs, two digital output ports and accelerated 2D and 3D graphics. The card interface to the PCI bus (versions 2.2 and above) or AGP bus (version 2.0 and above) incorporates multi-function capabilities for complete

multiple monitor operating system support. The result is a fast, high-resolution display.

The high-resolution display, plug-and-play compliance, support for multi-threaded, multiple monitor DirectX hardware acceleration, support for DVD motion compensation and color space conversion makes these cards very well-suited for sophisticated display tasks. The 60-pin low force helix (LFH) custom connectors, y-cables and adapters allow easy direct connection to either analog or DVI digital display devices.

These graphics cards also feature Appian's powerful and easy-to-use HYDRAVISION™ multiple monitor desktop management software for Windows NT 4.0, Windows 2000 and Windows XP. HYDRAVISION software allows the user to define the placement and behavior of windows and dialog boxes in the multiple monitor (extended desktop) display space, and provides a variety of productivity tools designed specifically for managing multiple monitors.

Included with your Graphics Card

Before using your RV100 hardware and software, please verify that your package contains the items listed below.

- The PCI or AGP graphics card
- An installation CD-ROM, includes User's Guide
- A Registration/Warranty Card
- 12" DVI Y-Cables (Qty. 2 for Rushmore, Qty. 1 for Typhoon, n/a for Hurricane)
- Analog adapters (Qty. 4 for Rushmore, Qty. 2 for Typhoon, or Qty. 1 for Hurricane)

Please contact Appian Technical Support if you find that any of these items missing or damaged. Fill out

and return the registration/warranty card to ensure full support from Appian for your RV100 product.

To get the best performance from your RV100 graphics card, use the supplied Windows NT 4.0, Windows 2000 or Windows XP drivers and HYDRAVISION display management software. Each operating system requires a separate program for configuring displays. Be sure to use the appropriate device drivers and configuration program for your operating system.

Using Multiple Monitors

The RV100 chipset family of cards supports the use of multiple monitors in Windows NT 4.0, Windows 2000 and Windows XP. Using a multiple monitor configuration is an efficient and cost-effective way to increase the size of your computer display area, commonly called the desktop. With multiple monitors, you can view a single application as a large window stretching across several monitors, or you can display a different application on each monitor.

Chapter 2

Get Started

General System Requirements

- A PC platform with a ½-length PCI slot compliant with PCI revision 2.2 or higher
- Operating system - Windows NT 4.0 with Service Pack 4 or higher, Windows 2000 or Windows XP.
- Pentium II processor
- At least 256MB of installed system memory (RAM)

Rushmore is VGA compatible and provides full support for Super VGA drivers written to Video Electronics Standards Association (VESA) specifications.

Prepare for Hardware Installation

To complete the installation, you may need some or all of the following tools:

- Medium size flat head screwdriver
- Medium size Phillips head screwdriver
- 3/16" nut driver or small wrench

To prepare your computer for installation of the Rushmore card, perform the following steps:

1. Uninstall any previously installed graphics card related software applications from the system. Please refer to the graphics card manufacturer's specific instructions on how to do this. These instructions can typically be found in the User's

Guide or Manual for the graphics card, or possibly on the card or system manufacture's web site.

2. Turn off the computer and the power for all external devices (monitor, printer, etc.).
3. Disconnect all cables from the rear of your computer to give you more room to work. Note where each cable connects so you can reconnect it after installing the Rushmore card.
4. Remove the cover-mounting screws on the computer. If necessary, refer to your system instruction manual for information on removing the computer cover.
5. Carefully remove the cover from the computer. The system motherboard should now be in full view.
6. Remove the previously installed graphics card if it is no longer needed.

Install the Hurricane

⊗ **WARNING! Do not modify the jumpers on your Hurricane card. A change to the factory set jumper configuration could change the performance of the Hurricane card or affect its ability to function properly in your system.**

To prepare your computer for installation of the Hurricane card, perform the following steps:

1. Uninstall any previously installed graphics card related software applications from the system. Please refer to the graphics card manufacturer's specific instructions on how to do this. These instructions can typically be found in the User's Guide or Manual for the graphics card, or possibly on the card or system manufacture's web site.
2. Turn off the computer and the power for all external devices (monitor, printer, etc.).

3. Disconnect all cables from the rear of your computer to give you more room to work. Note where each cable connects so you can reconnect it after installing the Hurricane card.
4. Remove the cover mounting screws on the computer. If necessary, refer to your system instruction manual for information on removing the computer cover.
5. Carefully remove the cover from the computer. The system motherboard should now be in full view.

To install your Hurricane card, perform the following steps:

6. Remove any previously installed graphics card(s) from the system.
7. Locate an available PCI or AGP expansion slot for the Hurricane card. If necessary, remove the expansion slot cover and partner screw using the appropriate tool.
- ⊗ **WARNING! The Hurricane is static sensitive. To avoid damage to the card from static electricity, ground yourself before handling the card by touching the metal frame on your computer. This dissipates any static electricity and prevents damage to sensitive components.**
8. Hold the Hurricane card by its top edge and slide it into the available slot. The PCI or AGP bus interface should fit into the appropriate slot. Make sure the Hurricane card is firmly seated in the slot.
9. Once the Hurricane card is correctly seated in the slot, secure it with the partner screw.
10. Replace and secure the computer cover.

Hurricane Monitor Cabling

The Hurricane card provides support for one DVI flat-panel or up to two VGA monitors using the supplied DVI-to-VGA adapter.

Plug the VGA monitor cable into the card VGA connector (the smaller of the two). Plug the DVI flat-panel cable into the card DVI connector (the larger of the two). If a second VGA monitor is desired, rather than a DVI panel, connect the second VGA monitor cable into the supplied DVI-to-VGA adapter (Figure 1), and then plug the adapter into the card DVI connector.

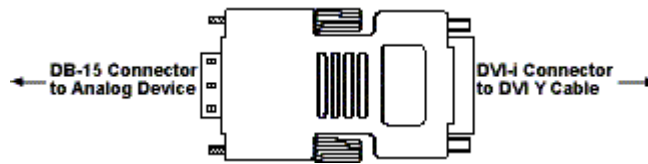


Figure 1. Analog Adapter

Install the Typhoon

⊗ **WARNING! Do not modify the jumper setting on your Typhoon card. A change to the factory set jumper configuration could change the performance of the Typhoon card or affect its ability to function properly in your system.**

To prepare your computer for installation of the Typhoon card, perform the following steps:

1. Uninstall any previously installed graphics card related software applications from the system. Please refer to the graphics card manufacturer's specific instructions on how to do this. These instructions can typically be found in the User's

Guide or Manual for the graphics card, or possibly on the card or system manufacture's web site.

2. Turn off the computer and the power for all external devices (monitor, printer, etc.).
3. Disconnect all cables from the rear of your computer to give you more room to work. Note where each cable connects so you can reconnect it after installing the Typhoon card.
4. Remove the cover mounting screws on the computer. If necessary, refer to your system instruction manual for information on removing the computer cover.
5. Carefully remove the cover from the computer. The system motherboard should now be in full view.

To install your Typhoon card, perform the following steps:

1. Remove any previously installed graphics card(s) from the system.
2. Locate an available PCI expansion slot or an AGP slot for the Typhoon card, depending on which Typhoon card you have purchased. If necessary, remove the expansion slot cover and partner screw using the appropriate tool.
- ⊗ **WARNING! The Typhoon is static sensitive. To avoid damage to the card from static electricity, ground yourself before handling the card by touching the metal frame on your computer. This dissipates any static electricity and prevents damage to sensitive components.**
3. Hold the Typhoon card by its top edge and slide it into the available slot. The PCI bus or AGP bus interface should fit into the slot. Make sure the Typhoon card is firmly seated in the slot.
4. Once the Typhoon card is correctly seated in the slot, secure it with the partner screw.

5. Replace and secure the computer cover.
6. Proceed to the monitor cabling section.

Typhoon Monitor Cabling

The Typhoon DVI card supports output to either analog or digital display devices. To connect the Typhoon DVI card to the desired display devices, perform the following steps:

1. Attach the supplied DVI Y-cable to the installed Typhoon DVI card and tighten the thumbscrews.
- ⊗ **WARNING! Make sure the cable connector is mated correctly to the connector on the Typhoon card. It is possible to plug the cable into the card incorrectly. This could cause damage to the cable connector.**
2. **If you plan to output display from the Typhoon DVI card to a DVI device**, such as a digital flat panel or digital projector, attach the supplied DVI Y-cable directly to your DVI device cable(s) and tighten the thumbscrews (Figure 2). Cable installation is complete.

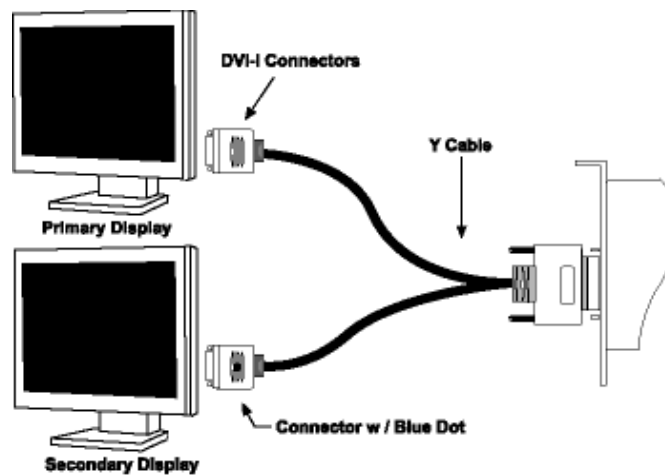


Figure 2. DVI Device Cable Installation

3. **If you plan to output display from the Typhoon DVI card to an analog device**, such as a CRT monitor or analog projector, attach the supplied analog adapters to the DVI Y-cable connected to the Typhoon DVI card and tighten the thumbscrews (Figure 3).
4. Attach the DVI Y-cable with adapters to the appropriate input cable connectors on your display device cables and tighten the thumbscrews (Figure 3). Cable installation is complete.

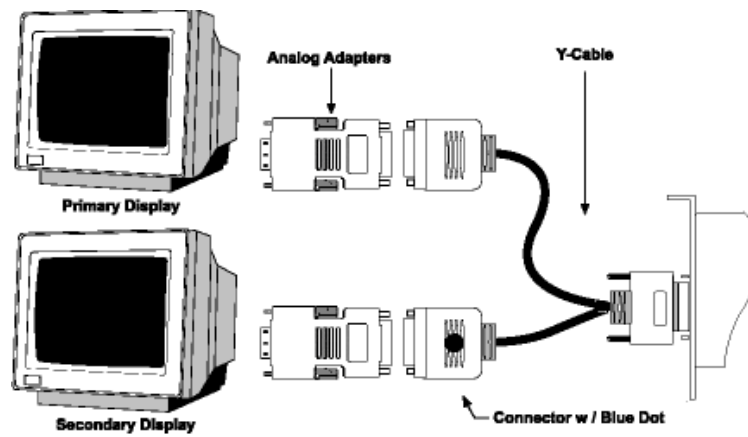


Figure 3. Analog Device Cable Installation

Install the Rushmore

⊗ **WARNING! Do not modify the jumpers on your Rushmore card. A change to the factory set jumper configuration could change the performance of the Rushmore card or affect its ability to function properly in your system.**

To prepare your computer for installation of the Rushmore card, perform the following steps:

1. Uninstall any previously installed graphics card related software applications from the system. Please refer to the graphics card manufacturer's specific instructions on how to do this. These instructions can typically be found in the User's Guide or Manual for the graphics card, or possibly on the card or system manufacture's web site.
2. Turn off the computer and the power for all external devices (monitor, printer, etc.).
3. Disconnect all cables from the rear of your computer to give you more room to work. Note where each cable connects so you can reconnect it after installing the Rushmore card.

4. Remove the cover mounting screws on the computer. If necessary, refer to your system instruction manual for information on removing the computer cover.
5. Carefully remove the cover from the computer. The system motherboard should now be in full view.

To install your Rushmore card, perform the following steps:

1. Remove any previously installed graphics card(s) from the system.
2. Locate an available PCI expansion slot for the Rushmore card. If necessary, remove the expansion slot cover and partner screw using the appropriate tool.
- ⊗ **WARNING! The Rushmore is static sensitive. To avoid damage to the card from static electricity, ground yourself before handling the card by touching the metal frame on your computer. This dissipates any static electricity and prevents damage to sensitive components.**
3. Hold the Rushmore card by its top edge and slide it into the available slot. The PCI bus interface should fit into the slot. Make sure the Rushmore card is firmly seated in the slot.
4. Once the Rushmore card is correctly seated in the slot, secure it with the partner screw.
5. Replace and secure the computer cover.
6. Proceed to the monitor cabling section below.

Rushmore Monitor Cabling

The Rushmore DVI card supports output to either analog or digital display devices. To connect the Rushmore DVI card to the desired display devices, perform the following steps:

1. Attach the supplied DVI Y-cable(s) to the installed Rushmore DVI card and tighten the thumbscrews.
NOTE: Monitors 1 and 3 will reside on the Y-cable connected to the lower Rushmore card connector. Monitors 2 and 4 will reside on the Y-cable connected to the upper Rushmore card connector.

⊗ **WARNING! Make sure the cable connector is mated correctly to the connector on the Rushmore card. It is possible to plug the cable into the card incorrectly. This could cause damage to the cable connector.**

2. **If you plan to output display from the Rushmore DVI card to a DVI device**, such as a digital flat panel or digital projector, attach the supplied DVI Y-cable(s) directly to your DVI device cable(s) and tighten the thumbscrews (Figure 4). Cable installation is complete.

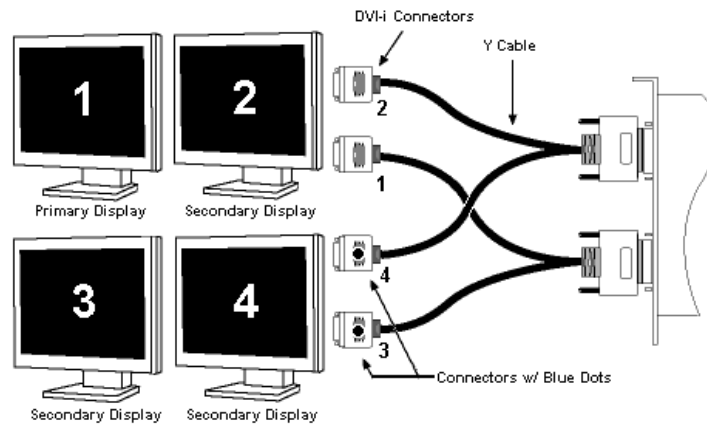


Figure 4. DVI Device Cable Installation

3. **If you plan to output display from the Rushmore DVI card to an analog device**, such as a CRT monitor or analog projector, attach the supplied analog adapters to the DVI Y-cable(s) connected to the Rushmore DVI card and tighten the thumbscrews (Figure 5).
4. Attach the DVI Y-cable(s) with adapters to the appropriate input cable connectors on your display device cables and tighten the thumbscrews (Figure 5). Cable installation is complete.

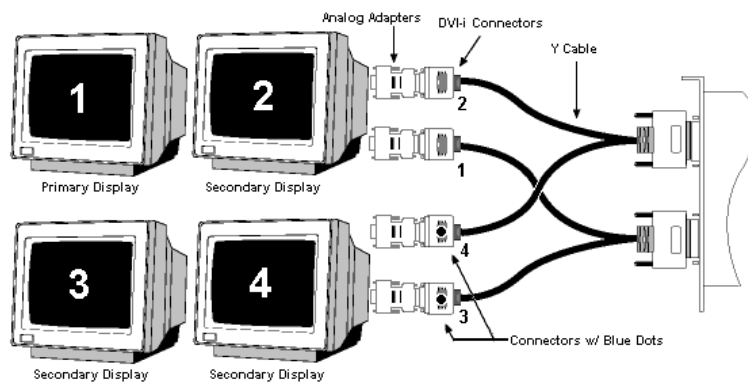


Figure 5. Analog Device Cable Installation

Chapter 3

Install and Use Software for Windows NT 4.0

This chapter explains how to install and use the Windows NT 4.0 display driver and HYDRAVISION desktop management software.

HYDRAVISION consists of a Desktop Manager that tracks windows and dialog boxes, a graphical user interface (GUI) control panel that allows you to control multiple monitors running in a single system, and the Appian MultiDesk utility.

NOTE: For general information regarding driver installation in Windows NT 4.0, please refer to your Windows documentation.

NOTE: These products require that you run Windows NT 4.0 with Service Pack version 4 or later. The Service Pack version number is shown on the blue start up screen. If you have an older Service Pack, upgrades are available from Microsoft (www.microsoft.com).

NOTE: You must have administrator rights to your computer in order to install the display drivers. If you do not have administrator rights, please contact your system administrator for assistance.

⊠ WARNING! To avoid possible conflicts, temporarily disable your virus protection software during installation of this software. You may reactivate virus protection after the installation is complete.

Install the Windows NT 4.0 Display Driver

- ⊗ **WARNING! To avoid possible conflicts, temporarily disable your virus protection software during installation of this software. You may reactivate virus protection after the installation is complete.**
- ⊗ **You must have administrator rights to your computer in order to install the display drivers. If you do not have administrator rights, please contact your system administrator for assistance.**

Prior to Windows NT4.0 driver installation, first make sure the Rushmore board is correctly installed in your system and that all monitors and cables are properly connected.

⚡ *NOTE: The Windows NT4.0 driver does not include HYDRAVISION™ desktop management software. HYDRAVISION™ software installation requires additional steps after the driver has been installed. Do not install HYDRAVISION™ software prior to installing this driver. The driver must be installed first. After the driver has been installed, proceed to the subsequent steps for HYDRAVISION™ software installation.*

Use the following instructions for a new hardware and Appian driver installation OR for a driver upgrade on a system with a previously installed Appian RV100 based Windows NT4.0 driver.

1. Install your Appian Graphics RV100 based hardware, if it is not already installed.
2. Boot your system into Windows NT 4.0. Insert the Appian RV100 based product installation CD-ROM.

3. Double-click on **My Computer**, right-click on the CD-ROM drive with the CD installed, and then click **Open**.
4. Double-click on the folder named **AppianDrivers**. Double-click on the Windows NT4.0 driver package of your choice. This is the executable (.exe) file that begins with "nt4...".
5. Read the driver self-extraction utility dialog and then click **OK** if you have selected the correct package in step 4. Otherwise, click **Cancel** and return to step 4.
6. Click **Unzip**.
7. After the files have been extracted to the specified folder, click **OK**, and then click **Close**.
8. Close the **AppianDrivers** Window.
9. Right-click on the desktop and then select **Properties**. The **Display Properties** window should appear.
10. Select the **Settings** tab from the **Display Properties** window.
11. Click the **Display Type...** button.
12. Click the **Change...** button in the **Display Type** window.
13. Click the **Have Disk...** button in the **Change Display** window.
14. Click the **Browse...** button and select the following path to the appropriate driver information (.inf) file:

C:\Appian\WinNT40

*NOTE: During this step, you may have to click **Cancel** to the **Locate File** dialog that appears when the floppy drive does not have a floppy disk inserted.*

15. Click on the **.inf** file shown and then click **Open**.

16. Click **OK** if the path shown is the same as listed in step 14. Otherwise, return to step 14 to select the correct path.
17. Click on the Appian NT4.0 RV100 display driver shown on the list and then click **OK**.
18. A warning box from Windows appears stating that you are installing third-party software drivers. Click **Yes** to proceed.
19. The Rushmore driver files are now installed, and a message appears confirming successful installation. Click **OK**.
20. Click **Close** to exit the **Display Type** window.
21. You are returned to the **Display Properties** dialog box. Click **Close** to exit.
22. You will now be prompted by Windows to restart your system. Click **Yes**.
23. Windows now restarts in single monitor mode. You can change the resolution and refresh rate for the Rushmore card from the **Settings** tab of the **Display Properties** dialog box. You can enable additional monitors from the **Multi-Monitor** tab of the **Display Properties** dialog box.
24. Now you can proceed to the section entitled "**Install HYDRAVISION™ and MultiDesk™ Desktop Management Software in Windows NT4.0**" to install the HYDRAVISION and MultiDesk software.

Install HYDRAVISION™ and MultiDesk™ Desktop Management Software in Windows NT4.0

NOTE: HYDRAVISION™ and MultiDesk™ desktop management software can only be installed after the display driver has been installed. Do not

install HYDRAVISION™ software prior to installing this driver. The driver must be installed first. If the driver has not been installed yet, then proceed to one of the above appropriate driver installation sections first.

1. Start your system and insert the Appian RV100 based product installation CD-ROM into the appropriate drive.
2. Double-click on **My Computer**, right-click on the CD-ROM drive with the CD installed, and then click **Open**.
3. Double-click on the folder named **HydraVision**. Double-click on the HYDRAVISION installation file to begin the installation process. This is the executable (.exe) file that begins with "hv...".

🔗 *NOTE: The latest HYDRAVISION installation file can also be downloaded from Appian Graphics' web site at **<http://www.appian.com>**.*

4. Now simply follow the prompts and instructions in the software installation wizard.
5. You may be prompted to restart your system. If so, click **Yes**.
6. Once the system has restarted, additional display resolutions and HYDRAVISION™ desktop management features will now be available for you to use. In addition, multiple virtual desktops will now be available to you by using the MultiDesk™ features.

To repair or remove HYDRAVISION™ and MultiDesk™ Desktop Management Software:

If you ever have a need to repair or remove HYDRAVISION and MultiDesk software for any reason, repeat steps 1 through 3 above and choose the option to **Repair** or **Remove**. Another method to remove HYDRAVISION and MultiDesk software is to click **Start**, then

Settings, then **Control Panel**. From the **Control Panel** window, double-click on **Add/Remove Programs** (Windows NT4.0 and Windows 2000) or **Add or Remove Programs** (Windows XP), click on the **Appian Graphics HydraVision** item, then click **Remove**. Click **Yes** to confirm removal of HYDRAVISION and MultiDesk software.

Use HYDRAVISION in Windows NT4.0

HYDRAVISION software works with the Rushmore hardware and device drivers to create a seamless multiple monitor desktop. HYDRAVISION allows multiple monitors connected to the Rushmore card to appear as one large display rather than several smaller ones. You can spread one application across all monitors or put a different application on each monitor.

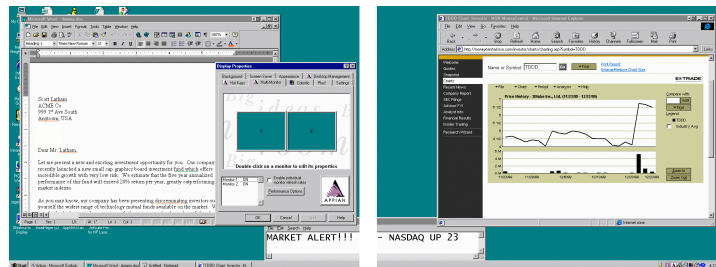


Figure 6. Dual Monitor Array

The above figure shows four applications displayed on two monitors. The desktop and applications stretch across both monitors. HYDRAVISION allows you to drag, drop and resize application windows to fit anywhere on a multiple monitor desktop.

Using multiple monitors with Windows can be awkward when windows and dialog boxes are split across monitors or appear where they're not wanted. The HYDRAVISION Desktop Manager solves this problem by allowing you to set preferences for window and dialog box placement.

HYDRAVISION installation in Windows NT 4.0 enables the Appian Desktop Manager and adds the HYDRAVISION display management software to your Windows Control Panel group, where it appears as additional tabs in the Display Properties dialog box. The HYDRAVISION control panel allows you to adjust the Desktop Manager and other display options.

The Desktop Manager starts automatically with Windows. You can tell that HYDRAVISION is running by the presence of the Appian icon in the Windows system tray.



Figure 7. HYDRAVISION System Tray Icon

Right-click on this icon to access HYDRAVISION features or help, or to unload the HYDRAVISION Desktop Manager. In addition to accessing HYDRAVISION from the system tray, you can also access HYDRAVISION by right-clicking on the Windows desktop and selecting **Properties**.

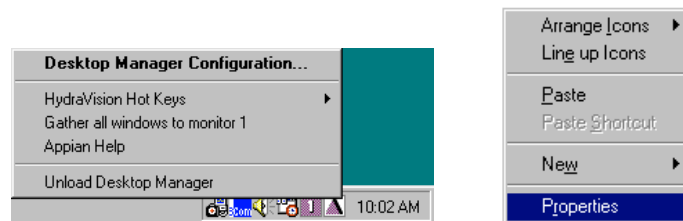


Figure 8. Accessing HYDRAVISION for Windows NT 4.0

The HYDRAVISION Desktop Manager allows you to adjust display options, such as hot keys, within a user-friendly graphical interface.

NOTE: Some application windows and dialog boxes are not written to Windows standards. HYDRAVISION may not be able to recognize and control these application's windows and dialog boxes.

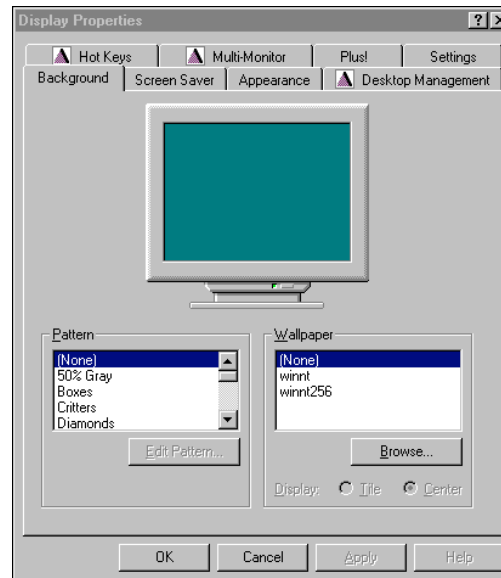


Figure 9. Display Properties Dialog Box Example

The above figure shows an example of the Windows **Display Properties** dialog box with the HYDRAVISION tabs. All the normal Display Properties tabs are still available, including the **Settings** tab, which allows you to change desktop resolution and color depth for analog displays.

The HYDRAVISION tabs shown with the Appian icon (**Multi-Monitor**, **Desktop Management** and **Hot Keys**) allow you to modify your display options.

HYDRAVISION also provides a dialog for extended display control, accessible from the **Multi-Monitor** tab. The **Extended Display Settings** dialog allows you to define and adjust each monitor in your system separately.

Along the bottom of each HYDRAVISION dialog are four buttons: **OK**, **Cancel**, **Apply** and **Help**.

- **OK** implements the changes you've made in the **Display Properties** dialog box and exits the control panel. Changes take effect immediately unless you see a message prompting you to restart your computer.
- **Cancel** discards *all* changes made to any section of **Display Properties** and closes the dialog box.
- **Apply** implements your changes without closing the **Display Properties** dialog box.
- **Help** connects to either local or on-line HTML-based help. You can also get context-sensitive on-screen help by moving your mouse over the relevant text for each control.

Multi-Monitor Controls

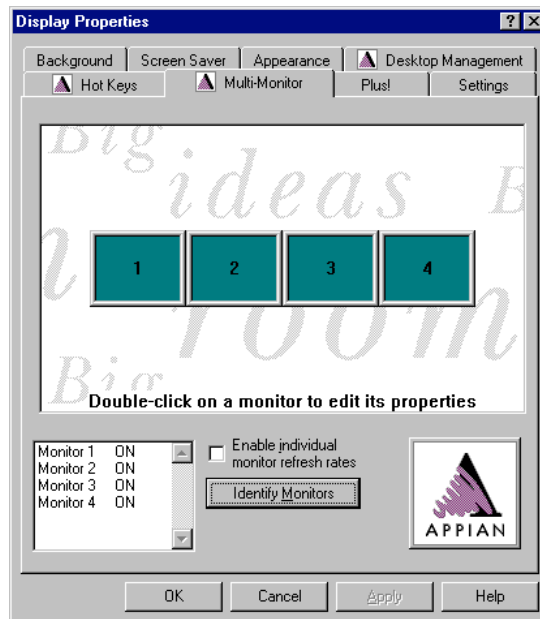


Figure 10. Multi-Monitor Dialog Example

Clicking on the **Multi-Monitor** tab brings you to the **Multi-Monitor** dialog. The **Multi-Monitor** dialog features a graphic representation of the current monitor array. You can drag the monitor illustrations to new locations in the diagram to change the array. You can also enable and disable monitors by double-clicking on the monitor number in the list box.

If the **Enable Individual Monitor Refresh Rates** box is checked, you can select independent refresh rates for each monitor in the system. Available refresh rates and other settings are contained in the **Extended Display Settings** dialog. To access the **Extended Display Settings** dialog, double-click on the individual monitor illustrations.

Clicking on the **Identify Monitors** button will display the monitor number assignments in large font on each display for several seconds.

Extended Display Settings

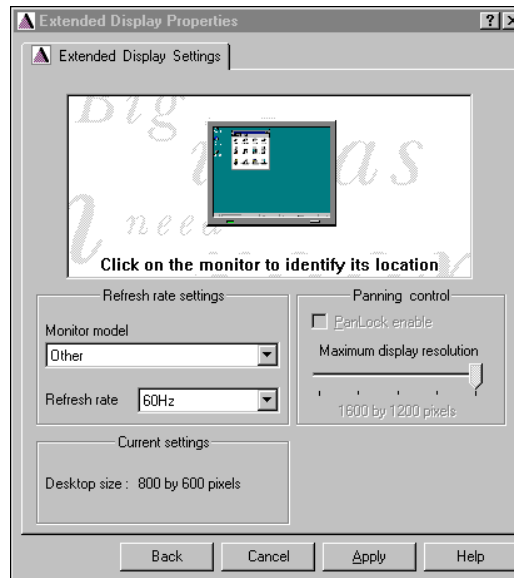


Figure 11. Extended Display Settings Dialog Example

Refresh rate settings:

- **Monitor Model**—From the drop-down menu, select the model and brand of the monitor(s) you are using so that HYDRAVISION can automatically determine the appropriate refresh rate for your display. This prevents manual selection of a refresh rate that is not supported by your monitor(s). If your monitor is not listed in the drop-down menu, it should still operate with the Rushmore card, as long as it is a multi-sync monitor. For monitors that are not

listed, select **Other** and manually choose the desired refresh rate.

⊗ **WARNING! Do not select a refresh rate higher than your monitor can support. Monitor damage may result.**

- **Refresh Rate**—HYDRAVISION automatically determines the appropriate refresh rate for your monitor based on your model selection, as explained above. You may choose different refresh rates from the drop-down menu for each monitor. In general, a higher refresh rate improves display quality but lowers performance, because the graphics system can only do a fixed number of operations per second. The more time it spends redrawing the screen, the less time it has for other operations.

Current Settings:

This box indicates the current resolution of your monitors. To change the desktop size, go to the Windows **Display Properties** dialog box and select the **Settings** tab. Change the **Desktop Area** using the slider bar.

↻ *NOTE: The Windows Settings dialog allows you to define the resolution of your desktop. The HYDRAVISION Extended Display Settings dialog allows you to define the resolution of each monitor. If your monitors are set at different resolutions, a virtual desktop will be enabled on the monitor that is set to a lower resolution.*

Panning control:

- **PanLock enable**—This control applies when using a virtual desktop. When this box is checked, the display is locked and

will no longer pan with the mouse. You can also access this control on the fly by using Appian **hot keys** (see details below).

- **Maximum Display Resolution**—Use the slider bar to select the maximum display resolution for each active monitor. Once you have done this, the actual monitor resolution will never exceed this value. If the desktop resolution selected in the Windows **Settings** dialog is greater than this value, a virtual desktop will be enabled on that monitor. Changes to the display and virtual resolution are dynamically illustrated on the monitor graphic above the slider bar.

🔗 NOTE: Virtual desktops allow you to increase the size of your work area and open multiple application windows in an environment that extends beyond your display. In a virtual desktop environment, moving your mouse beyond the edge of the visible screen area causes the display to pan across the virtual desktop, giving you access to the entire work area.

Desktop Management Controls

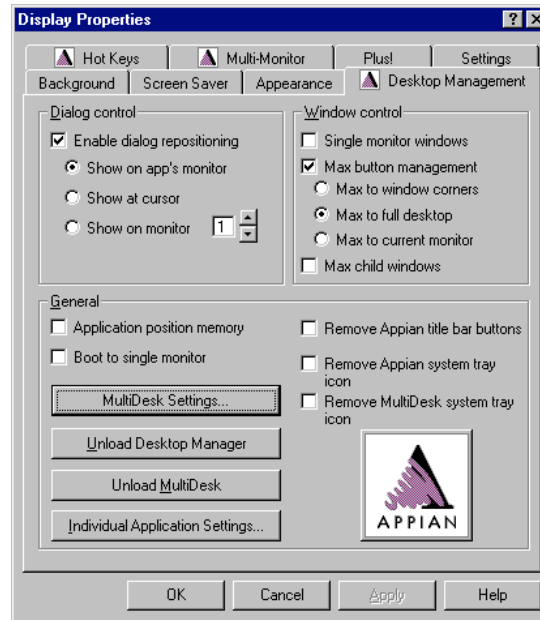


Figure 12. Desktop Management Dialog Example

Clicking on the **Desktop Management** tab brings you to the **Desktop Management** dialog. The **Desktop Management** dialog lets you determine the behavior of pop-up windows and dialog boxes in a multiple monitor environment.

Dialog Control:

- **Enable dialog repositioning**—Toggles dialog control on and off. When it is checked, you can choose to have dialog boxes appear on the parent application's monitor (The parent application is the application that generated the dialog box.). If the parent application or

associated monitor cannot be located, the dialog box defaults to Monitor 1. You can also choose to have dialog boxes appear on the monitor in which the cursor is located or to always appear on a specific monitor in the array.

*NOTE: Windows system logon and logoff messages cannot be repositioned and will always appear split across monitors unless the **Boot to single monitor** control is enabled (see below).*

Window control:

- **Single monitor windows**—When this box is checked, windows are sized no larger than a single monitor. Windows that are placed on monitor splits are automatically relocated to the monitor on which most of the window appears.
- **Max button management**—Allows you to control the behavior of the Windows **Maximize** button. In a typical Windows environment, clicking the **Maximize** button causes a window to size itself to the full desktop.

NOTE: Clicking the Appian icon on the application title bar makes the active window fill the current monitor, regardless of this setting.

- **Max to window corners** causes windows to maximize to the monitor(s) that contains the window's upper left and lower right corners.
- **Max to full desktop** causes windows to maximize to the entire monitor array.
- **Max to current monitor** causes windows to maximize to the monitor that contains

the greatest portion of the window.

- **Max child windows**—Keeps windows generated by parent applications from splitting across monitors (A child window is a window residing within a parent application window.). The ability to keep child windows on a single monitor when maximized is extremely useful for editing multiple documents side by side in a parent application.

General:

- **Application position memory**—Check this box to “remember” the size and location of application windows when they are closed and reapply those settings when the application is reopened.
- **Boot to single monitor**—Check this box to boot your system in single monitor mode. This prevents system messages and the Windows splash screen from splitting across monitors during boot-up. The display will switch to multiple monitor mode after you log on and the Appian Desktop Manager loads.
- **Remove Appian title bar buttons**—Check this box to disable and remove the Appian icon, visible in the upper right corner of all active application title bars, which maximizes the active window and allows access to individual application settings.
- **Remove Appian system tray icon**—This box removes or restores the Appian system tray icon.

- **Remove MultiDesk system tray icon**—This box removes or restores the MultiDesk system tray icon.

MultiDesk Settings...—This button allows you to view the applications running on each of the nine virtual desktops and set any one of the desktops active instantly. It also allows you to name active desktops for complete MultiDesk customization. See also the MultiDesk section of this chapter for additional information about MultiDesk.

Load/Unload Desktop Manager—This button restores or removes the HYDRAVISION Desktop Manager. Unloading the Desktop Manager returns display settings to Windows defaults. You should only select this option if you do not want to use any multiple monitor dialog box and window controls or hot keys.

🔗 *NOTE: **Unload** applies to your current Windows session only. When Windows restarts, the Desktop Manager will reload.*

Load/Unload MultiDesk—This button restores or removes multiple desktop functionality.

🔗 *NOTE: **Unload** applies to your current Windows session only. When Windows restarts, MultiDesk will reload.*

Individual Application Settings... — This button allows you to specify, enable and disable desktop management settings for individual applications.

🔗 *NOTE: These settings override the global settings defined in the **Desktop Management** dialog.*

- **Enable individual application settings**—Check this box to specify desktop management settings for individual applications. You can access these settings by clicking on the down

arrow of the Appian icon in the application title bar or by clicking the **Individual Application Settings** button in the **Desktop Management** dialog.

Hot Keys Controls

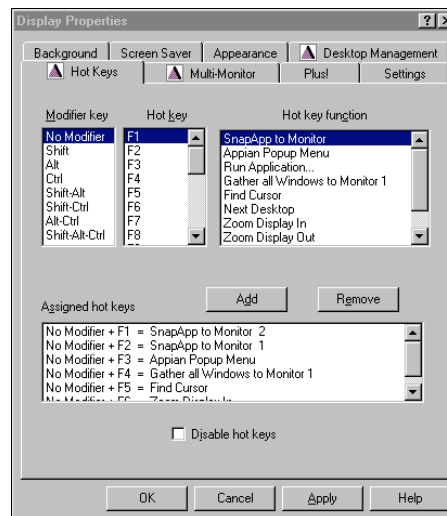


Figure 13. Hot Keys Dialog Example

Clicking on the **Hot Keys** tab brings you to the **Hot Keys** dialog. The **Hot Keys** dialog allows you to specify hot key shortcuts for common operations such as starting applications, snapping applications to designated monitors and changing display resolution.

Create/Remove Hot Keys

To create custom hot key sequences, select a **Modifier key** (Shift, Alt, etc.), a **Hot key**, and the **Hot key function** you want this key combination to

perform. Click **Add** to enter your new combination in the **Assigned hot keys** list box. Click **Apply** to activate assigned hot keys.

NOTE: Appian recommends that a modifier key be used with any function key (F1, F2, etc.) assigned as a hot key. This will prevent interference with the function of these keys in individual applications.

To delete a hot key from the **Assigned hot keys** list box, highlight it, click **Remove**, and then click **Apply**.

You can disable all hot keys listed in the **Assigned hot keys** list box by checking the **Disable hot keys** box near the bottom of the **Hot Keys** dialog.

Use Hot Keys

You can use any assigned hot key at any time, from within any application, to change your display.

Provided hot key functions include:

- Snap App to Monitor—Allows you to move or “snap” active windows or dialogs from monitor to monitor for quick placement and viewing of desktop contents.
- Appian Pop-up Menu—Allows on the fly access to HYDRAVISION controls.
- Run Application...—Lets you start any application with a hot key.
- Gather All Windows to Monitor 1—Allows you to find applications that are hidden or are open and lost on disabled monitors.
- Find Cursor—Locates the cursor on a busy or crowded desktop.

- Zoom Display In/Out—Causes the desktop resolution to increase or decrease.
- Switch to desktop scheme (X)—Allows you to change your desktop scheme to any pre-configured Windows desktop scheme.
- Toggle Panlock on/off—Allows you to toggle the PanLock enable function of Extended Display Settings Panning control on or off.
- Next Desktop—Accesses the next active desktop in MultiDesk (see below).
- Previous Desktop—Accesses the previous active desktop in MultiDesk (see MultiDesk description for more information).
- Jump to Desktop...—Accesses the an active desktop of your choosing in MultiDesk (see MultiDesk description for more information).
- Move Application to Desktop...—Allows you to move a running application on the active desktop to another desktop of your choosing using MultiDesk.
- Restore and Tile Windows—Allows you to restore all minimized running Windows applications and tile them on the desktop.
- Minimize all apps on current monitor—Allows you to minimize all running applications on the current monitor.
- Maximize app to monitor—Allows you to maximize the application in focus to the monitor of your choosing.

MultiDesk

HYDRAVISION software supports multiple desktops. With MultiDesk, one active desktop will always be

visible; while up to eight active desktops can reside in the background. When MultiDesk is running, the MultiDesk icon in the system tray displays the number assigned to the current desktop.

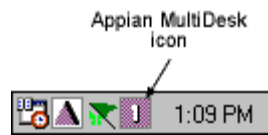


Figure 14. MultiDesk System Tray Icon

Right-click on this icon to access MultiDesk controls. In addition to accessing active desktops from the system tray, you can also access active desktops with a **Hot key** shortcut or by using the **MultiDesk Settings** button on the **Desktop Management** tab dialog in the **Display Properties** window.

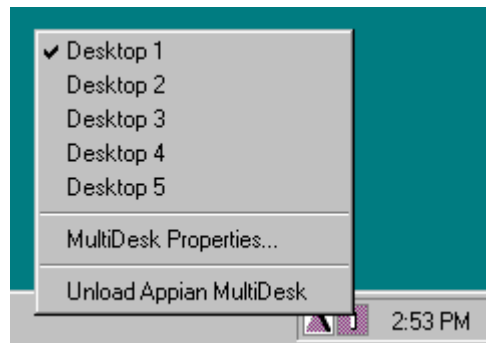


Figure 15. MultiDesk Pop-Up Menu

To switch to another defined desktop, select the appropriate desktop number from the pop-up menu. To enable, disable and name active desktops, select **MultiDesk Properties** from the pop-up menu.

NOTE: This applies to your current Windows session only. When Windows restarts, MultiDesk will reload.

Chapter 4

Install and Use Software for Windows 2000 and Windows XP

This chapter explains how to install and use the Windows 2000 and Windows XP display drivers and HYDRAVISION desktop management software. HYDRAVISION is designed for Windows 2000 and Windows XP.

🔗 *NOTE: For general information regarding driver installation in Windows 2000 and Windows XP, please refer to your Windows documentation.*

⚠ **WARNING! To avoid possible conflicts, temporarily disable your virus protection software during installation of this software. You may reactivate virus protection after the installation is complete.**

Install the Rushmore Windows 2000 Driver

⚠ **WARNING! To avoid possible conflicts, temporarily disable your virus protection software during installation of this software. You may reactivate virus protection after the installation is complete.**

Prior to Windows 2000 driver installation, first make sure the graphics board is correctly installed in your system and that all monitors and cables are properly connected.

🔗 *NOTE: The Windows 2000 driver does not include HYDRAVISION™ desktop management software. HYDRAVISION™ software installation requires*

additional steps after the driver has been installed. Do not install HYDRAVISION™ software prior to installing this driver. The driver must be installed first. After the driver has been installed, proceed to the subsequent steps for HYDRAVISION™ software installation.

Use the following instructions for a new hardware and Appian driver installation OR for a driver upgrade on a system with a previously installed Appian RV100 based Windows 2000 driver. If upgrading from a previous driver, skip step 1 and go straight to step 2.

1. Start your system. Upon Windows 2000 start up, the new hardware will be automatically detected and the **Found New Hardware Wizard** will appear. You must click **Cancel** on the **Found New Hardware Wizard** (up to two times for Rushmore) before proceeding. If you are prompted to restart your system, click **No**.
2. Insert the Appian RV100 based product installation CD-ROM into the appropriate drive.
3. Double-click on **My Computer**, right-click on the CD-ROM drive with the CD installed, and then click **Open**.
4. Double-click on the folder named **AppianDrivers**. Now double-click on the Windows 2000 driver installation file to begin the installation process. This is the executable (.exe) file that begins with "w2k...".

NOTE: The latest driver installation file can also be downloaded from Appian Graphics' web site at <http://www.appian.com>.

5. Now simply follow the prompts and instructions in the driver installation wizard.
6. If the "**Digital Signature Not Found**" dialog appears, click **Yes** for each time it appears.

7. The driver files are now installed. You will now be prompted to restart the system. Click **Yes**.
8. If this is a new driver installation, Windows will restart in single monitor mode. You can enable additional monitors and change the resolution from the **Settings** tab of the **Display Properties** dialog box. To go to the **Display Properties** dialog box, right-click in an empty area of the desktop and then click on **Properties**.

NOTE: The set of resolutions available may be limited until you install HYDRAVISION™ software.

9. Now you can proceed to the section entitled **"Install HYDRAVISION™ and MultiDesk™ Desktop Management Software in Windows 2000 and Windows XP"** to install the HYDRAVISION and MultiDesk software.

Install the Rushmore Windows XP Driver

⚠ WARNING! To avoid possible conflicts, temporarily disable your virus protection software during installation of this software. You may reactivate virus protection after the installation is complete.

Prior to Windows XP driver installation, first make sure the graphics board is correctly installed in your system and that all monitors and cables are properly connected.

NOTE: The Windows XP driver does not include HYDRAVISION™ desktop management software. HYDRAVISION™ software installation requires additional steps after the driver has been installed. Do not install HYDRAVISION™ software prior to installing this driver. The driver must be

installed first. After the driver has been installed, proceed to the subsequent steps for HYDRAVISION™ software installation.

Use the following instructions for a new hardware and Appian driver installation OR for a driver upgrade on a system with a previously installed Appian RV100 based Windows XP driver. If upgrading from a previous driver, skip step 1 and go straight to step 2.

1. Upon boot up of the system, if this is a new hardware installation, Windows XP will automatically detect the new hardware and install the ATI Radeon VE DDR or Radeon 7000 VE "built-in" device drivers. This is because the Appian Graphics RV100 based products all use the ATI Technologies Radeon VE graphics processor. In this case if prompted to restart the system during the installation process, click **Yes**.

⊠ **WARNING! After the system re-boots with the ATI Radeon VE DDR or Radeon 7000 VE driver installed, DO NOT CHANGE ANY OF THE DISPLAY SETTINGS AT THIS TIME – the results will not be predictable with the ATI driver installed and the system may lock up or restart on its own.**

🔗 *NOTE: If your system is connected to the Internet, you may be able to install the Appian Graphics Windows XP WHQL driver automatically instead of using the provided installation CD. To do this after the "built-in" ATI Radeon VE DDR or Radeon 7000 VE driver installs, right-click on your desktop and select **Properties**, to bring up the **Display Properties** window. Next, select the **Settings** tab in the **Display Properties** window, right-click on display number 1 to highlight it and then click **Properties**. Click on the **Adapter** tab in the next properties window and then click on the **Properties** button. Click*

on the **Driver** tab in the next properties window and then click on the **Update Driver...** button. This starts the **Hardware Update Wizard** – select the recommended method to install the software automatically and then click **Next>**. Click **Finish** on the **Hardware Update Wizard** after the driver is installed. Click **Close** on the Adapter properties window and select **Yes** when prompted to restart the system. If you are using a Rushmore graphics adapter, then you will have to repeat this procedure for display number 2. After the system restarts with all display drivers updated, you can skip the following driver installation steps and proceed directly to step 1 of the HYDRAVISION™ software installation instructions below. If you choose not to install your driver automatically via the Internet, or for some reason this option did not succeed, then proceed to step 2 next.

2. Insert the Appian RV100 based product installation CD-ROM into the appropriate drive.
 3. Double-click on **My Computer**, right-click on the CD-ROM drive with the CD installed, and then click **Open**.
 4. Double-click on the folder named **AppianDrivers**. Now double-click on the Windows XP driver installation file to begin the installation process. This is the executable (.exe) file that begins with "wxp...".
-  *NOTE: The latest driver installation file can also be downloaded from Appian Graphics' web site at **<http://www.appian.com>**.*
5. Now simply follow the prompts and instructions in the driver installation wizard.
 6. The driver files are now installed. You will now be prompted to restart the system. Click **Yes**.
 7. Windows will restart in single monitor mode. You can enable additional monitors and change the

resolution from the **Settings** tab of the **Display Properties** dialog box. To go to the **Display Properties** dialog box, right-click in an empty area of the desktop and then click on **Properties**.

☞ *NOTE: The set of resolutions available may be limited until you install HYDRAVISION™ software.*

8. Now you can proceed to the section entitled **"Install HYDRAVISION™ and MultiDesk™ Desktop Management Software in Windows 2000 and Windows XP"** to install the HYDRAVISION and MultiDesk software.

Install HYDRAVISION™ and MultiDesk™ Desktop Management Software in Windows 2000 and Windows XP

☞ *NOTE: HYDRAVISION™ and MultiDesk™ desktop management software can only be installed after the display driver has been installed. Do not install HYDRAVISION™ software prior to installing this driver. The driver must be installed first. If the driver has not been installed yet, then proceed to one of the above appropriate driver installation sections first.*

1. Start your system and insert the Appian RV100 based product installation CD-ROM into the appropriate drive.
2. Double-click on **My Computer**, right-click on the CD-ROM drive with the CD installed, and then click **Open**.
3. Double-click on the folder named **HydraVision**. Double-click on the HYDRAVISION installation file to begin the installation process. This is the executable (.exe) file that begins with "hv...".

☞ *NOTE: The latest HYDRAVISION installation file can also be downloaded from Appian Graphics' web site at **<http://www.appian.com>**.*

4. Now simply follow the prompts and instructions in the software installation wizard.
5. You may be prompted to restart your system. If so, click **Yes**.
6. Once the system has restarted, additional display resolutions and HYDRAVISION™ desktop management features will now be available for you to use. In addition, multiple virtual desktops will now be available to you by using the MultiDesk™ features.

To repair or remove HYDRAVISION™ and MultiDesk™ Desktop Management Software:

If you ever have a need to repair or remove HYDRAVISION and MultiDesk software for any reason, repeat steps 1 through 3 above and choose the option to **Repair** or **Remove**. Another method to remove HYDRAVISION and MultiDesk software is to click **Start**, then **Settings**, then **Control Panel**. From the **Control Panel** window, double-click on **Add/Remove Programs** (Windows NT4.0 and Windows 2000) or **Add or Remove Programs** (Windows XP), click on the **Appian Graphics HydraVision** item, then click **Remove**. Click **Yes** to confirm removal of HYDRAVISION and MultiDesk software.

Use HYDRAVISION in Windows 2000 and Windows XP

The Windows 2000 and XP operating systems are designed to recognize multiple monitors in a single system. HYDRAVISION software is specifically designed for use with Windows 2000 or Windows XP.

HYDRAVISION installation enables the Appian Desktop Manager and creates a Windows program group for HYDRAVISION display management software.

HYDRAVISION and the Appian Desktop Manager are activated whenever Windows starts. You can tell that HYDRAVISION is running by the presence of the Appian icon in the Windows system tray.



Figure 16. HYDRAVISION System Tray Icon

Right-click on this icon to access HYDRAVISION features and help, or to unload the HYDRAVISION Desktop Manager. In addition to accessing HYDRAVISION from the system tray, you can also access HYDRAVISION from the Windows **Start** menu under **Programs**.



Figure 17. Accessing HYDRAVISION

The HYDRAVISION Desktop Manager allows you to modify your display options. You can access the **Desktop Management** and **Hot Keys** dialog boxes by clicking on the appropriate tab in the Desktop Manager.

Along the bottom of each HYDRAVISION dialog are four buttons: **OK**, **Cancel**, **Apply** and **Help**.

- **OK** implements the changes you've made in the HYDRAVISION dialog and exits the Desktop Manager. Changes take effect immediately unless you see a message prompting you to restart your computer.
- **Cancel** discards *all* changes made to any section of the HYDRAVISION dialog and closes the Desktop Manager.
- **Apply** implements your changes without closing the Desktop Manager.
- **Help** connects to either local or on-line HTML-based help. You can also get context-sensitive on-screen help by moving your mouse over the relevant text for each control.

Desktop Management Controls

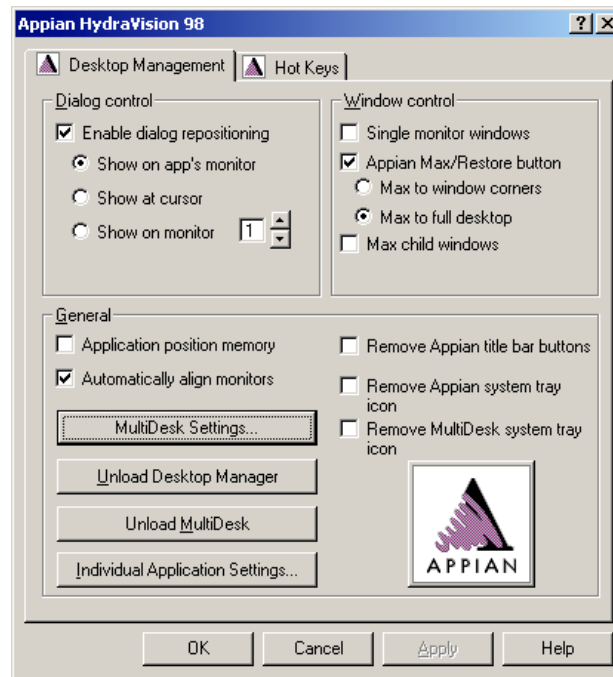


Figure 18. Desktop Management Dialog Example

Clicking on the **Desktop Management** tab brings you to the **Desktop Management** dialog. The **Desktop Management** dialog lets you determine the behavior of pop-up windows and dialog boxes in a multiple monitor environment.

Dialog control:

- **Enable dialog repositioning**—Toggles dialog control on and off. When it is checked, you can choose to have dialog boxes appear on the parent application's monitor (The parent application is the application that generated the dialog box.). If the parent application or

associated monitor cannot be located, the dialog box defaults to monitor 1. You can also choose to have dialog boxes appear on the monitor in which the cursor is located or to always appear on a specific monitor in the array.

Window control:

- **Single monitor windows**—When this box is checked, windows are sized no larger than a single monitor. Windows that are placed on monitor splits are automatically relocated to the monitor on which most of the window appears.
- **Appian Max/Restore**—Allows you to control the behavior of the Windows **Maximize** button. When HYDRAVISION is running, an Appian icon appears in the upper right corner of your application title bars. Clicking this icon makes the active window maximize in one of two ways:
 - **Max to window corners** causes windows to maximize to the monitor(s) that contain the window's upper left and lower right corners.
 - **Max to full desktop** causes windows to maximize to the entire monitor array.
- **Max child windows**—Keeps windows generated by parent applications from splitting across monitors (A child window is a window residing within a parent application window.). The ability to keep child windows on a single monitor when maximized is extremely useful for editing multiple documents side by side in a parent application.

NOTE: The Appian application title bar icon changes from a single square to two smaller squares when a window is in an Appian maximized state. Clicking the icon again restores the active window to its default state as a single square.

General:

- **Application position memory**—Check this box to “remember” the size and location of application windows when they are closed and reapply those settings when the application is reopened.
- **Automatically align monitors**—Under Windows 2000, you can manually define monitor placement from the **Settings** dialog in the **Display Properties** dialog box. When this box is checked, HYDRAVISION will override user-defined monitor placement if the monitors are not evenly aligned.

NOTE: This control will work only if all monitors are running at the same resolution and your desktop is configured as a rectangle (monitors side by side).

- **Remove Appian title bar buttons**—Check this box to disable and remove the Appian icon, visible in the upper right corner of all active application title bars, which maximizes the active window and allows access to individual application settings.
- **Remove Appian system tray icon**—This box removes or restores the Appian system tray icon.

- **Remove MultiDesk system tray icon**—This box removes or restores the MultiDesk system tray icon.

MultiDesk Settings...—This button allows you to view the applications running on each of the nine virtual desktops and set any one of the desktops active instantly. It also allows you to name active desktops for complete MultiDesk customization. See also the MultiDesk section of this chapter for additional information about MultiDesk.

Load/Unload Desktop Manager—This button restores or removes the HYDRAVISION Desktop Manager tracking program. Unloading the Desktop Manager returns display settings to Windows 2000 defaults. You should only select this option if you do not want to use any multiple monitor dialog box and window controls or hot keys.

⚡ *NOTE: **Unload** applies to your current Windows 2000 session only. When Windows 2000 restarts, the Desktop Manager will reload.*

Load/Unload MultiDesk—This button restores or removes multiple desktop functionality.

⚡ *NOTE: **Unload** applies to your current Windows 2000 session only. When Windows 2000 restarts, MultiDesk will reload.*

Individual Application Settings—This button allows you to specify, enable and disable desktop management settings for individual applications.

⚡ *NOTE: These settings override the global settings defined in the **Desktop Management** dialog.*

- **Enable individual application settings**—Check this box to specify desktop management settings for individual applications. You can access these settings by clicking on the down

arrow of the Appian icon in the application title bar or by pressing the **Individual Application Settings** button in the **Desktop Management** dialog.

Hot Keys Controls

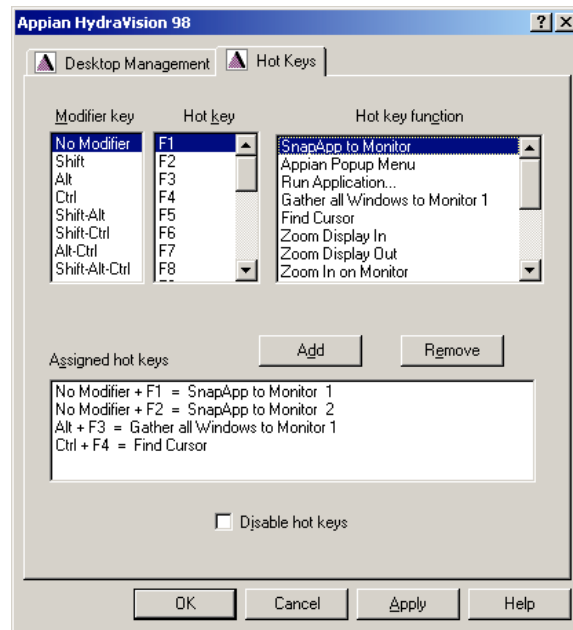


Figure 19. Hot Keys Dialog Example

Clicking on the **Hot Keys** tab brings you to the **Hot Keys** dialog. The **Hot Keys** dialog allows you to specify hot key shortcuts for common operations such as starting applications, snapping applications to designated monitors and changing display resolution.

Create/Remove Hot Keys

To create custom hot key sequences, select a **Modifier key** (Shift, Alt, etc.), a **Hot key**, and the **Hot key function** you want this key combination to perform. Click **Add** to enter your new combination in the **Assigned hot keys** list box. Click **Apply** to activate assigned hot keys.

NOTE: Appian recommends that a modifier key be used with any function key (F1, F2, etc.) assigned as a hot key. This will prevent interference with the function of these keys in individual applications.

To delete a hot key from the **Assigned hot keys** list box, highlight it, click **Remove**, and then click **Apply**.

You can also disable all hot keys listed in the **Assigned hot keys** list box by checking the **Disable hot keys** box near the bottom of the **Hot Keys** dialog.

Use Hot Keys

You can use any assigned hot key at any time, from within any application, to change your display.

Provided hot key functions include:

- Snap App to Monitor—Allows you to move or “snap” active windows or dialogs from monitor to monitor for quick placement and viewing of desktop contents.
- Appian Pop-up Menu—Allows on the fly access to HYDRAVISION controls.
- Run Application...—Lets you start any application with a hot key.
- Gather All Windows to Monitor 1—Allows you to find applications that are hidden or are open and lost on disabled monitors.
- Find Cursor—Locates the cursor on a busy or crowded desktop.
- Zoom Display In/Out—Causes the desktop resolution to increase or decrease.

- Zoom In/Out on Monitor—Causes the resolution of the active monitor to increase or decrease.
- Next Desktop—Accesses the next active desktop in MultiDesk (see below).
- Previous Desktop—Accesses the previous active desktop in MultiDesk (see MultiDesk description for more information).
- Jump to Desktop...—Accesses the an active desktop of your choosing in MultiDesk (see MultiDesk description for more information).
- Move Application to Desktop...—Allows you to move a running application on the active desktop to another desktop of your choosing using MultiDesk.
- Restore and Tile Windows—Allows you to restore all minimized running Windows applications and tile them on the desktop.
- Minimize all apps on current monitor—Allows you to minimize all running applications on the current monitor.
- Maximize app to monitor—Allows you to maximize the application in focus to the monitor of your choosing.

MultiDesk

HYDRAVISION software supports multiple desktops. With MultiDesk, one active desktop will always be visible, while up to eight active desktops can reside in the background. When MultiDesk is running, the MultiDesk icon in the system tray displays the number assigned to the current desktop.

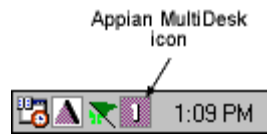


Figure 20. MultiDesk System Tray Icon

Right-click on this icon to access MultiDesk controls. In addition to accessing active desktops from the system tray, you can also access active desktops with a **Hot key** shortcut or by using the **MultiDesk Settings** button on the **Desktop Management** tab dialog in the **Display Properties** window.

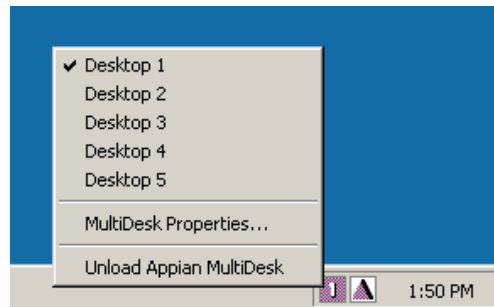


Figure 21. MultiDesk Pop-Up Menu

To switch to another defined desktop, select the appropriate desktop number from the pop-up menu. To enable, disable and name active desktops, select **MultiDesk Properties** from the pop-up menu. To arrange applications within active desktops, or to enable specific applications on all desktops, select **Arrange MultiDesk** from the pop-up menu.

The MultiDesk functionality can be removed by selecting **Unload Appian MultiDesk** from the pop-up menu.

NOTE: This applies to your current Windows session only. When Windows restarts, MultiDesk will reload.

Chapter 5

Technical Information

Mode Support

The following tables provide information about the analog and digital resolutions, refresh rates and color depths supported by Rushmore graphics cards. To display at a specific resolution with the desired refresh rate, both the graphics card and monitor must support your selection. Refer to the documentation that came with your monitor for a list of supported resolutions and refresh rates.

⊠ **WARNING! Be sure the refresh rates you select are compatible with your monitor. Incompatible refresh rate selection may result in monitor damage.**

Color bit depth →	32bpp	16bpp	8bpp
Resolution ↓	Max Refresh Rates (Hz)		
2048x1536 (60Hz only)	not avail.	*	*
1920x1200	*	*	
1920x1080	*	*	
1600x1200	*		
1536x1024			
1360x768			
1280x1024			
1280x768			
1200x1600 (portrait)			
1152x864			
1024x1280 (portrait)			
1024x768			
853x480			
852x480			
800x600			
640x480			

⚠ **NOTE: supported for two channels only on Rushmore or one channel only on Typhoon and Hurricane, depending on selected refresh rate.*

Table 1. Supported Analog Resolutions and Refresh Rates

Color bit depth →	32bpp	16bpp	8bpp
Resolution	Max Refresh Rate (Hz)		
1280x1024		60 to 75	
1024x768			
800x600		60 to 85	
640x480			

Table 2. Supported Digital Resolutions and Refresh Rates

Monitor Cables and Connector Pinouts

This section contains information about the connectors on your Rushmore card, as well as information about the connectors on the DVI Y-cable, analog cable and analog adapters.

LFH Connector Pinouts

Figure 22 and Table 3 indicate pinouts for the low force helix (LFH) connector on your Rushmore card.

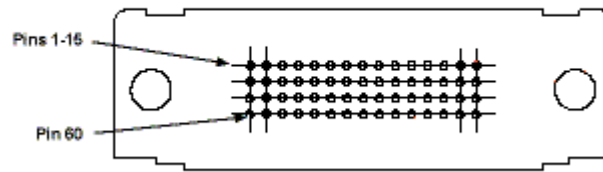


Figure 22. LFH Connector Pinouts

Pin	Allocation	Pin	Allocation	Pin	Allocation
1	Red	21	Shield0/5	41	Data1-
2	Return1	22	SHIELDCLK	42	Data2-
3	Data4-	23	PGND	43	SCL
4	Data3-	24	SHIELDCLK	44	BGND
5	Data3+	25	Shield0/5	45	Blue
6	Data5+	26	Shield1/3	46	VSYNC
7	Data5-	27	Shield2/4	47	HSYNC
8	PGND	28	Data4+	48	SDA
9	Data5-	29	HPD	49	Data2+
10	Data5+	30	Green	50	Data1+

11	Data3+	31	Blue	51	Data0+
12	Data3-	32	Return2	52	CLK+
13	Data4-	33	SCL	53	VCC
14	Return1	34	Data3-	54	CLK+
15	Red	35	Data1-	55	Data0+
16	Green	36	Data0-	56	Data1+
17	HPD	37	CLK-	57	Data2+
18	Data4+	38	+5V	58	SDA
19	Shield2/4	39	CLK-	59	HSYNC
20	Shield1/3	40	Data0-	60	VSYNC

Table 3. LFH Connector Description

DVI Connector Pinouts

Figure 23 and Table 4 indicate pinouts for the standard DVI connectors on the DVI Y-cable included with your Rushmore card. Digital displays use this type of connector.

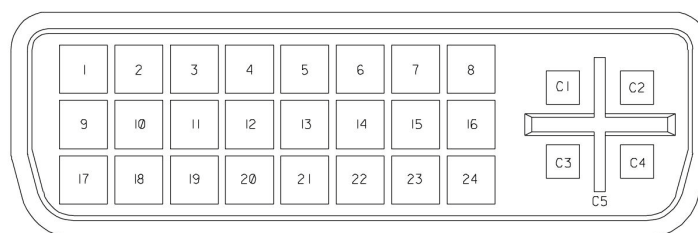


Figure 23. DVI Connector Pinouts

Pin	Allocation	Pin	Allocation
High Speed Pins			
C1	Analog Red Video Out	C4	Analog Horizontal Sync
C2	Analog Green Video Out	C5	Analog Ground Return
C3	Analog Blue Video Out		
Main Pins			

1	TMDS Data2-	13	TMDS Data3+
2	TMDS Data2+	14	+5V Power
3	TMDS Data2/4 Shield	15	Ground (Return for +5V Analog H/V Sync)
4	TMDS Data4-	16	Hot Plug Detect
5	TMDS Data4+	17	TMDS Data0-
6	DDC Clock	18	TMDS Data0+
7	DDC Data	19	TMDS Data0/5 Shield
8	Analog Vertical Sync	20	TMDS Data5-
9	TMDS Data1-	21	TMDS Data5+
10	TMDS Data1+	22	TMDS Clock Shield
11	TMDS Data1/3 Shield	23	TMDS Clock+
12	TMDS Data3-	24	TMDS Clock-

Table 4. DVI Connector Description

DB-15 Connector Pinouts

Figure 24 and Table 5 indicate pinouts for the standard DB-15 connector on the analog adapters. Most analog monitors use this type of connector.

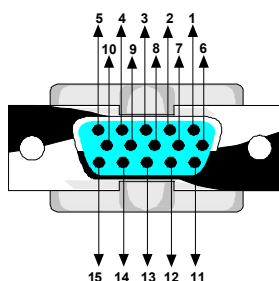


Figure 24. DB-15 connector pinouts

Pin	Allocation	Pin	Allocation
1	Red Video	8	Blue return (Ground)
2	Green Video	9	+5V DC (Fused)
3	Blue Video	10	Sync return (Ground)

4	Reserved	11	Reserved
5	Ground	12	SCL (DDC)
6	Red return (Ground)	13	Horizontal Sync
7	Green return (Ground)	14	Vertical Sync
	<i>Continued in next column ↗</i>	15	SDA (DDC)

Table 5. DB-15 connector pinouts

Functional Specifications

- Two ATI Technologies Radeon™VE graphics processors (Rushmore), or one ATI Technologies Radeon™VE graphics processor (Hurricane and Typhoon)
 - Two 300MHz RAMDACs per processor
 - 64-bit wide memory bus per processor
- PCI-PCI bridge chip (Rushmore only)
- 64MB 166MHz DDR SDRAM
- Bus interface
 - PCI 2.2 compliant OR
 - AGP 2.0 compliant (Typhoon and Hurricane)
- Two TMDS digital output transmitters per Radeon VE chip (one internal to the Radeon VE, one external)
- DDWG/DVI-i compliant
- Driver support
 - Windows NT 4.0, Windows 2000 and Windows XP
 - DirectX 8.1
- Two Molex 60-pin LFH connectors (Rushmore), one Molex 60-pin LFH connectors (Typhoon), or one DB15 and one DVI LFH connector (Hurricane)
- Board dimensions are:
 - 6.94"L x 4.2"H (Rushmore)
 - 6.67"L x 2.54"H (Typhoon)
 - 6.57"L x 4.2"H (Hurricane)
- Power consumption is:
 - 19 watts max. (Rushmore)
 - 10 watts max. (Hurricane and Typhoon).
- Complies with Microsoft PC99 specification

Chapter 6

Troubleshooting

If you have a problem with your Rushmore card and don't find the solution in this User's guide, please contact Appian Technical Support at 800-422-7369 or support@appian.com.

You can also visit the technical support section of the Appian web site at www.appian.com for the latest product support information, additional frequently asked questions and solutions to common installation and usage problems.

Frequently Asked Questions

What if my system won't boot after installing the graphics card?

- Make sure the graphics card is properly seated in the PCI expansion slot.
- Verify the slot is functioning properly by installing the card in a different PCI expansion slot.
- Make sure all power cables are secure and properly connected.
- Check your power source and verify that the power is turned on.
- If you are using Windows NT 4.0:
 - Make sure other graphics cards have been removed from the system.
 - Make sure any on-board video is disabled.
 - Make sure you are using Service Pack 4 or later.

What if the Windows operating system warns that the graphics card is not configured properly?

- Check the driver installation and ensure that all software corresponds to the operating system and is correctly loaded.
- Reinstall the display drivers.
- Make sure drivers and utilities from previously installed graphics cards are removed/uninstalled from the system.
 1. Select **Start|Settings|Control Panel**, double-click **Add/Remove Programs**.
 2. Remove any drivers and utilities listed for graphics cards no longer in the system.
- Check for address and interrupt conflicts to ensure the I/O and memory addresses reserved for the graphics card are not in use by other hardware devices.

What if the Windows 2000 or Windows XP Device Manager shows a resource conflict between my graphics card and another system component?

Disable any display adapters listed in the Device Manager other than the Rushmore card.

1. Right-click **My Computer**, select **Properties**.
2. Select the **Device Manager** tab.
3. Find **Display Adapters** and click on the plus sign (+) to the left.
4. Double-click the name of any display adapters listed other than the Rushmore card.
5. Check the **Disable in this hardware profile** box.
6. Shut down and restart the computer.

What if nothing displays on the monitor(s) connected to the graphics card?

- Be sure the graphics card is properly seated in the PCI expansion slot and that cables are secure and properly connected.

- Make sure the monitor is receiving power.
- Check the pins on the monitor connector(s) to ensure none are broken or bent.
- The brightness or contrast controls on your monitor may not be adjusted correctly. Check and readjust these controls.
- Make sure all monitors are enabled in the **Display Properties** dialog box.
- Make sure the refresh rate is set correctly for each monitor.
- Make sure the latest Appian display drivers are installed.
- If you have a fixed frequency monitor, please contact Appian Technical Support.

What if defects appear in my display?

- Make sure that both the graphics card and monitor(s) support the resolution and refresh rates you have selected. Refer to your monitor's documentation for recommended resolutions and refresh rates.
- Make sure the latest Appian display drivers are installed.

Why do application boxes always appear on the primary monitor, when my application is on another monitor?

In Windows 2000, most Microsoft Windows-compatible programs are multiple-monitor aware. However, many legacy applications are not. Some legacy applications will display their dialog boxes either split across two monitors, or only on the primary monitor, regardless of which monitor that application is running on.

In many cases, HYDRAVISION can solve this problem through dialog repositioning.

1. Right-click the **Appian icon** on your taskbar.
2. Select **Desktop Manager Configuration**.
3. Select the **Desktop Management** tab.

4. Check the **Enable dialog repositioning** check box and choose one of the options listed underneath.
5. Click **OK**.

What resolutions are best for use with my flat panel display?

Most 15-inch flat panel displays are designed to work best at a resolution of 1024x768. Likewise, 18-inch flat panel displays usually work best at 1280x1024. Windows 2000 and Windows XP automatically detect which resolutions are best for a particular display, and make available only those modes in the Display Properties settings. Consult the manual for your display hardware to determine the resolution for which your flat panel was designed.

Where can I find the most recent software and documentation for the graphics card?

The latest Appian drivers and display management software for the Rushmore are available from the Appian FTP site at <ftp.appian.com>. Up-to-date documentation can be obtained from the Appian web site at www.appian.com.

Appendix A

Regulatory Information

Responsible Party

The following party is responsible for the accuracy and completeness of the regulatory compliance statements contained within this User's Guide:

Appian Graphics Corp.
18047 N.E. 68th Street
Redmond, WA 98052

Industry Canada Compliance Statement for Hurricane and Typhoon

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numéroté de la classe B est conforme à la norme NMB-003 du Canada.

CE Compliance Statement for Hurricane and Typhoon

Electromagnetic Compatibility

The manufacturer (responsible party) hereby declares that this device conforms to the following standards in accordance with the European Commission Directive 89/336/EEC:

Emissions

EN 55022:1998 (Class B)

Immunity

EN 55024, including
EN 61000-4-2 (Level B), ESD
EN 61000-4-3 (Level A), Radiated Immunity
EN 61000-4-4 (Level B), EFT
EN 61000-4-5 (Level B), Surge
EN 61000-4-6 (Level A), Conducted Immunity
EN 61000-4-8 (Level A), Magnetic Field Immunity
EN 61000-4-11 (Level B and C), Voltage Dips and Interruptions



A handwritten signature in cursive script that reads 'Scott Swift'.

Scott Swift
Representative, Responsible Party

FCC Compliance Statement for Hurricane and Typhoon

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from _____ that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
 (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this device not expressly approved by Appian Graphics may void the user's authority to operate the equipment.



Japan VCCI Compliance Statement for Typhoon

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
 取扱説明書に従って正しい取り扱いをして下さい。

This is a Class B product, to be used in a domestic environment, based on the Technical Requirement of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Please

install and use the equipment according to the instruction manual.

Industry Canada Compliance Statement for Rushmore

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

CE Compliance Statement for Rushmore

Electromagnetic Compatibility

The manufacturer (responsible party) hereby declares that this device conforms to the following standards in accordance with the European Commission Directive 89/336/EEC:

Emissions

EN 55022:1998 (Class A)

Immunity

EN 55024, including

EN 61000-4-2 (Level B), ESD

EN 61000-4-3 (Level A), Radiated Immunity

EN 61000-4-4 (Level B), EFT

EN 61000-4-5 (Level B), Surge

EN 61000-4-6 (Level A), Conducted Immunity

EN 61000-4-8 (Level A), Magnetic Field Immunity

EN 61000-4-11 (Levels B and C), Voltage Dips and



Appendix A: Regulatory Information

Interruptions



Scott Swift
Representative, Responsible Party

FCC Compliance Statement for Rushmore

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this device not expressly approved by Appian Graphics may void the user's authority to operate the equipment.



Japan VCCI Compliance Statement for Rushmore

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This is a Class A product based on the Technical Requirement of the Voluntary Control Council for Interference by Information Technology (VCCI). In a domestic environment this product may cause radio interference, in which case the user may be required to take corrective actions.

Appendix B

Disclaimer

Appian Graphics has made every effort to ensure the accuracy of this document. However, Appian Graphics makes no warranties with respect to this documentation and disclaims any implied warranties of merchantability, accuracy and fitness for a particular purpose. The information in this document is subject to change without notice. Appian Graphics Corp. assumes no responsibility for any errors that may appear in this document.

High Risk Applications

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